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EXAMINER	
KAO, JUTAI	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,047	VASSEUR ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 7-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendments filed on 01/08/2009 change the scopes of the original claim. New grounds of rejections are applied to the amended claims in the current office action; the action is therefore made FINAL as necessitated by the amendment.

The amendments cured the problem addressed in the claim objections and 35 USC 112 rejections applied in the previous office action. The corresponding rejections/objections are withdrawn.

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-8, 10-11 and 13-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu (US 2007/0053300) in views of Inderieden (US 2004/0006640) and Goguen (US 6,665,273).

Zhu discloses a system for multi-path shortest-path-first computations and distance-based interface selection for VoIP traffic including the following features.

Regarding claim 1, a method for determining traffic paths between one or more source-destination node pairs (see IP device 1-3 in Fig. 3) in a communications network, comprising starting from a first set of paths between said source-destination node pairs (see path A and B recited in paragraph [0055] and including path 316 and 318 in Fig. 3), determining a second set of paths between said source-destination node pairs (see Path C recited in paragraph [0055] and [0058], represented by path 320+330 respectively in Fig. 3; it is noted that the second set of paths, as shown in the figure, only includes one path, which still reads on the claim since it is a set of one path, in addition, even though only one path is shown for the group, it would have been obvious to one of the ordinary skill in the art that the figure is only for exemplary purposes, and it would be obvious to have a plurality of paths within the second set of paths) while taking into account a set of constraints (see paragraphs 35-37, wherein the costs of the paths are assigned based on the constraints that the paths should have the same total costs

and the costs of each network interface), such that said second set of path emulates the first set of paths (see "set costs for interior segments…such that Paths A, B, and C have the same aggregate cost" recited in paragraph [0059], such that the second set of path, path C, emulates the aggregate cost of the first set of paths, A and B).

Regarding claim 13, wherein said second routing protocol (shown in rejection to claim 6) data are routed on predetermined paths (see path C and G as shown in rejection to claim 1).

Zhu does not disclose the following features: regarding claim 1, wherein said first set of paths is related to the use of a first routing protocol and the second set of paths is determined for use with a second routing protocol, different from said first routing protocol; regarding claim 3, wherein the first set of paths are included in a routing and load model for said source-destination node pairs related to a first routing protocol; regarding claim 4, wherein said routing and load model takes in to account the network topology, the route configuration resulting from the use of the first routing protocol and/or a selection of source destination node pairs; regarding claim 5, where the first set of paths is related to the use of a first routing protocol; regarding claim 6, where the second set of paths is determined for sue with a second routing protocol; regarding claim 7, wherein the second set of paths is determined such that the routing using a second routing protocol is similar to the routing using a first routing protocol; regarding claim 8, wherein said set of constraints is related to a second set of paths; regarding claim 10, wherein said first routing protocol includes an interior gateway protocol; regarding claim 11, wherein said first and/or said second routing protocol applies load

balancing; regarding claim 14, wherein said second routing protocol includes a multi-protocol label-switching traffic engineering protocol.

Inderieden discloses a method of sending notification to routing protocols of changes to routing information base including the following features.

Regarding claim 1, wherein said first set of paths is related to the use of a first routing protocol and the second set of paths is determined for use with a second routing protocol, different from said first routing protocol (see "increase the scalability, efficiency, and reliability of a routing system by providing a plurality of different routing protocols, each of which provide candidate route...multi-protocol routing architectures" recited in paragraph [0007]; therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use routes with different protocols in forming the first and second set of paths).

Goguen discloses a method of dynamically adjusting MPLS traffic engineering tunnel bandwidth including the following features.

Regarding claim 1, where the first set of paths (shown in Zhu) is related to the use of a first routing protocol (see "IGP…OSPF" recited in column 1, line 30-64), where the second set of paths (shown in Zhu) is determined for sue with a second routing protocol (see "MPLS" recited in column 1, line 43).

Regarding claim 3, wherein the first set of paths (shown in Zhu) are included in a routing and load model for said source-destination node pairs related to a first routing protocol (see "IGP" recited in column 1, line 62).

Regarding claim 4, wherein said routing and load model takes into account the network topology, the route configuration resulting from the use of the first routing protocol and/or a selection of source destination node pairs (see "IGP...OSPF" recited in column 1, line 30-64, wherein OSPF is known to take the network topology into account by searching for the shortest-path).

Regarding claim 7, wherein the second set of paths (shown in Zhu) is determined such that the routing using a second routing protocol (see "MPLS" recited in column 1, line 43) is similar to the routing using a first routing protocol (see "MPLS based router...may include...a routing module...IGP" recited in column 1, line 58-64; that is, the MPLS protocol uses the routing table of an IGP protocol, therefore, the MPLS routing would be similar to that of the IGP routing protocol).

Regarding claim 8, the method wherein said set of constraints is related to a second set of paths (see "paths are established by considering resource requirements and resource availability...bandwidth requirements..." recited in column 4, lines 1-8; the resource requirement is related to the path to be set up, which would be the first and second set of paths as shown in Zhu).

Regarding claim 10, wherein said first routing protocol includes an interior gateway protocol (see "IGP" recited in column 1, line 62).

Regarding claim 11, wherein said first and/or said second routing protocol applies load balancing (see "IGP is load balancing..." recited in column 3, lines 9-10).

Regarding claim 14, wherein said second routing protocol includes a multi-protocol label-switching traffic engineering protocol (see "MPLS TE" recited in column 3, line 35).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu using features, as taught by Inderieden and Goguen, in order to increase the scalability, efficiency and reliability of a routing system (see Inderieden, paragraph [0007]) and in order to establish paths considering available resources and requirements (see Goguen column 4, lines 3-5).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Worfolk (US 7,233,574).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 2, wherein the second set of paths is determined such that the traffic load on said second set of path emulates the traffic load on said first set of path.

Worfolk discloses a multi-path dynamic routing algorithm including the following features.

Regarding claim 2, wherein the second set of paths is determined such that the traffic load on said second set of path emulates the traffic load on said first set of path (see "The allocation of traffic load between these paths can be equal…" recited in

column 13, lines 7-9; that is, the load of the second set of paths emulate that of the first set such that the loads are equal).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Worfolk, in order to perform load balancing for the network.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Neogi (US 6,650,620).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 9, wherein said constraints result from network nodes limitations and/or routing protocol constrains related to said second set of paths.

Neogi discloses a resource constrained routing in active networks including the following features.

Regarding claim 9, wherein said constraints result from network nodes limitations (see "resource constrained routing method...based upon the resource status...capabilities of all of the other active nodes" recited in the abstract) and/or routing protocol constrains related to said second set of paths (shown in Zhu).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught

by Neogi, in order to in order to establish paths considering available resources and requirements (see Goguen column 4, lines 3-5).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Wright (US 2006/0039364).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 12, wherein said first routing protocol includes an equal cost multiple paths extension.

Wright discloses a system for policy-enabled communications network including the following features.

Regarding claim 12, wherein said first routing protocol includes an equal cost multiple paths extension (see "ECMP...can embed the load balancing optimization problem in the IGP implementation" Recited in paragraph [0114]).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Wright, in order to in order to optimize the load balancing of the IGP implementation (see Wright, paragraph [0114]).

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Harshavadhana (US 2001/0012298).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 15, wherein said constraints comprise a maximum number of paths between each source-destination node pair.

Harshavardhana discloses a method for routing signals including the following features.

Regarding claim 15, wherein said constraints comprise a maximum number of paths between each source-destination node pair (see "maximum number of paths which can be stored in memory for each source-destination..." recited in paragraph [0029]; since only a predetermined number of paths could be stored in memory, a maximum number of path for each pair exists effectively).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Harshavardhana, in order to in order to ensure the node constraint is not violated.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Prager (US 2007/0286201).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 16, wherein said constraints comprise that the traffic between a particular source-destination node pair is load balanced such that the share of traffic along any path is a fraction with constrained integer numerator and denominator.

Prager discloses a system for parallel connection selection in a communication network including the following features.

Regarding claim 16, wherein said constraints comprise that the traffic between a particular source-destination node pair is load balanced such that the share of traffic along any path is a fraction with constrained integer numerator and denominator (see "the bandwidth load balance value may be expressed a ratio of a numerator and a denominator" recited in paragraph [0022]; and it is well known in math to express ratio using integer numerator and denominator).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Prager, in order to perform load balancing of the bandwidth.

10. Claim 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim1 above, and further in view of Gawlick (US 5,519,836).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 17, wherein a search technique is used to determine said second set of paths;

Regarding claim 18, wherein one of the following search techniques are used to determine said second set of paths: "generate and test" search algorithm, constraint programming and/or mathematical programming; regarding claim 19, wherein an optimal search algorithm is used; regarding claim 20, wherein a heuristic search algorithm is used.

Gawlick discloses a method of online permanent virtual circuit routing including the following features.

Regarding claim 17, wherein a search technique is used (see "heuristic in which each possible alternative path...is examined..." recited in column 5, line 58 to column 6, line 8) to determine said second set of paths (see Zhu used in the rejection of claim 1).

Regarding claim 18, wherein one of the following search techniques are used to determine said second set of paths: "generate and test" search algorithm (see "heuristic in which each possible alternative path...is examined..." recited in column 5, line 58 to column 6, line 8; that is, the heuristic generates and test each possible alternative path to reduce the cost of routing), constraint programming and/or mathematical programming.

Regarding claim 19, wherein an optimal search algorithm is used (see "heuristic in which each possible alternative path...is examined..." recited in column 5, line 58 to column 6, line 8; that is, the heuristic searches for the path with the lowest cost, which would be the optimal path).

Regarding claim 20, the method wherein a heuristic search algorithm is used (see "heuristic in which each possible alternative path...is examined..." recited in column 5, line 58 to column 6, line 8).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Gawlick, in order to route through the path with the lowest cost.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Beshai (US 2004/0202111).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 21, the method wherein each source-destination node pair is treated independently.

Beshai discloses a method of courteous routing including the following features.

Regarding claim 21, the method wherein each source-destination node pair is treated independently (see "independent route sets have been determined for each node-pair (source and destination)" recited in paragraph [0045]).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Beshai, in order to produce a routing table of routes for each node pairs.

12. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden, Goguen and Beshai as applied to claim 21 above, and further in view of Dull (US 2005/0018693).

Zhu, Inderieden, Goguen and Beshai disclose the claimed limitations as shown above.

Zhu, Inderieden, Goguen and Beshai do not disclose the following features: regarding claim 22, the method comprises a method of avoiding a system a systematic bias for particular paths; regarding claim 23, wherein ties between symmetric solutions are broken randomly.

Dull discloses a fast filtering process for a highly integrated network device including the following features.

Regarding claim 22, the method comprises a method of avoiding a system a systematic bias for particular paths (see "equal cost paths to be chosen in a random manner" recited in paragraph [0039]; the random selection avoids bias with the nature of its randomness).

Regarding claim 23, wherein ties between symmetric solutions are broken randomly (see "equal cost paths to be chosen in a random manner" recited in paragraph [0039]; the random selection breaks any symmetric solution by selecting paths randomly).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Zhu, Inderieden, Goguen and Beshai using features, as taught by Dull, in order to prevent overloading a specific path.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Baum (US 2007/012488).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Goguen also discloses the following features.

Regarding claim 26, where the first set of paths (shown in Zhu) is related to the use of a first routing protocol (see "IGP…OSPF" recited in column 1, line 30-64), where the second set of paths (shown in Zhu) is determined for sue with a second routing protocol (see "MPLS" recited in column 1, line 43).

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 26, a method of operating a communication network, comprising switching at least some network traffic from a first routing protocol to a second routing protocol, wherein the method includes a method of calculating traffic paths according to claim 1.

Baum discloses vertical services integration enabled content distribution mechanism including the following features.

Regarding claim 26, a method of operating a communication network, comprising switching at least some network traffic from a first routing protocol to a second routing protocol (see "Fig. 5migration to other types of...routing protocols" recited in paragraph [0059]; and see Fig. 5, where a number of routing protocols are shown including Ethernet, Frame Relay and etc.), wherein the method includes a method of calculating traffic paths according to claim 1 (see Zhu and Goguen in rejection of claim 1).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Baum, in order to increase flexibility in routing protocol usage.

14. Claim 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Klinker (US 2004/0249971).

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 27, a method of measuring traffic between a plurality of source and destination nodes in a communication network comprising the method according to claim 1.

Klinker discloses a method for providing dynamic domain name system including the following features.

Regarding claim 27, a method of measuring traffic between a plurality of source and destination nodes in a communication network (see "measuring inbound traffic performance from each of the identified sources to the destination address" recited in paragraph [0023]) comprising the method according to claim 1 (see rejection to claim 1 using Zhu and Goguen as shown above).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Klinker, in order to monitor the performance of the network.

15. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden, Goguen and Baum as applied to claim 26 above, and further in view of Charny (US 2004/0052207).

Zhu, Inderieden, Goguen and Baum disclose the claimed limitations as shown above.

Zhu, Inderieden, Goguen and Baum do not disclose the following features: regarding claim 28, wherein at least some of the traffic is protected using secondary tunnels.

Charny discloses a method of load balancing for fast reroute backup tunnels including the following features.

Regarding claim 28, wherein at least some of the traffic is protected using secondary tunnels (see "backup tunnel may protect multiple parallel paths..." recited in the abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu, Inderieden, Goguen and Baum using features, as taught by Charny, in order to protect system from link failure.

16. Claims 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden and Goguen as applied to claim 1 above, and further in view of Charny.

Zhu, Inderieden and Goguen disclose the claimed limitations as shown above.

Zhu, Inderieden and Goguen do not disclose the following features: regarding claim 29, a method of providing secondary paths for a communication network, comprising the method of claim 1; regarding claim 31, wherein part of the remaining link capacity is used for the secondary paths; regarding claim 32, wherein the secondary paths are determined for the non-load balanced case.

Charny discloses a method of load balancing for fast reroute backup tunnels including the following features.

Regarding claim 29, a method of providing secondary paths for a communication network, (see "backup tunnel may protect multiple parallel paths..." recited in the abstract), comprising the method of claim 1 (see rejection of claim 1 using Zhu and Goguen).

Regarding claim 31, wherein part of the remaining link capacity is used for the secondary paths (see "backup tunnels having sufficient remaining bandwidth to protect the LSP..." recited in paragraph [0054]).

Regarding claim 32, wherein the secondary paths are determined for the non-load balanced case (see "backup tunnel may protect multiple parallel paths..." recited in the abstract; that is, the secondary paths are used for backup purposes and does not have anything to do with the load balancing of the primary paths).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu, Inderieden and Goguen using features, as taught by Charny, in order to protect system from link failure.

17. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu, Inderieden, Goguen and Charny as applied to claim 29 above, and further in view of Cortez (US 7,130,262).

Zhu, Inderieden, Goguen and Charny disclose the claimed limitations as shown above.

Zhu, Inderieden, Goguen and Charny do not disclose the following features: regarding claim 30, wherein a measured maximum link load is used as the primary bandwidth for each link.

Cortez discloses a method for providing alternative link weights for failed network paths including the following features.

Regarding claim 30, wherein a measured maximum link load is used as the primary bandwidth for each link (see "primary service path...maximum available capacity" recited in the abstract; that is, the system finds a path with the maximum bandwidth to be used as the primary data path when restoration is required).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu, Inderieden, Goguen and Charny using features, as taught by Cortez, in order to provide optimal bandwidth to the users.

18. Claims 24-25 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Zhu in views of Inderieden, Goguen and Worfolk.

Zhu discloses a system for multi-path shortest-path-first computations and distance-based interface selection for VoIP traffic including the following features.

Regarding claim 24, a method of calculating traffic paths between one or more source-destination node pairs (see IP device 1-3 in Fig. 3) in a communication network, comprising starting from a first set of paths between said source-destination node pairs (see path A and B recited in paragraph [0055] and including path 316 and 318 in Fig. 3), determining a second set of paths between said source-destination node pairs (see Path C and G recited in paragraph [0055] and [0058], represented by path 320+330 and 322+330 respectively in Fig. 3), such that said second set of path is similar to the first set of paths (see Path C recited in paragraph [0055] and [0058], represented by path 320+330 respectively in Fig. 3; it is noted that the second set of paths, as shown in the figure, only includes one path, which still reads on the claim since it is a set of one path, in addition, even though only one path is shown for the group, it would have been obvious to one of the ordinary skill in the art that the figure is only for exemplary purposes, and it would be obvious to have a plurality of paths within the second set of paths) while taking into account a set of constraints (see paragraphs 35-37, wherein the costs of the paths are assigned based on the constraints that the paths should have the same total costs and the costs of each network interface), such that said second set of path emulates the first set of paths (see "set costs for interior segments…such that Paths A, B, and C have the same aggregate cost" recited in paragraph [0059], such that the second set of path, path C, emulates the aggregate cost of the first set of paths, A and B).

Regarding claim 25, a method of calculating traffic paths between one or more source-destination node pairs (see IP device 1-3 in Fig. 3) in a communication network,

comprising starting from a first set of paths between said source-destination node pairs (see path A and B recited in paragraph [0055] and including path 316 and 318 in Fig. 3), determining a second set of paths between said source-destination node pairs (see Path C and G recited in paragraph [0055] and [0058], represented by path 320+330 and 322+330 respectively in Fig. 3), such that said second set of path is similar to the first set of paths (see "set costs for interior segments...such that Paths A, B, and C have the same aggregate cost" recited in paragraph [0059], such that the second set of path, path C, has aggregate cost similar to that of the first set of paths, A and B).

Zhu does not disclose the following features: regarding claim 24, wherein said first set of paths is related to the use of a first routing protocol and the second set of paths is determined for use with a second routing protocol, different from said first routing protocol and that the traffic load of said second set of paths is similar to the traffic load of said first set of paths; regarding claim 25, wherein the first set of paths uses a first routing protocol, the second set of paths uses a second routing protocol such that the load balancing in said first and second routing protocols is similar.

Inderieden discloses a method of sending notification to routing protocols of changes to routing information base including the following features.

Regarding claim 24, wherein said first set of paths is related to the use of a first routing protocol and the second set of paths is determined for use with a second routing protocol, different from said first routing protocol (see "increase the scalability, efficiency, and reliability of a routing system by providing a plurality of different routing protocols, each of which provide candidate route...multi-protocol routing architectures"

recited in paragraph [0007]; therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use routes with different protocols in forming the first and second set of paths).

Goguen discloses a method of dynamically adjusting MPLS traffic engineering tunnel bandwidth including the following features.

Regarding claim 24, wherein the second set of path (shown in Zhu) is determined while taking into account a set of constraints (see "Constraint-based routing..." recited in column 3, lines 57 to column 4, line 8).

Regarding claim 25, wherein the first set of paths uses a first routing protocol (see "IGP" recited in column 1, line 62), the second set of paths uses a second routing protocol (see "MPLS" recited in column 1, line 43).

Worfolk discloses a multi-path dynamic routing algorithm including the following features.

Regarding claim 24, the traffic load of said second set of paths is similar to the traffic load of said first set of paths (see "The allocation of traffic load between these paths can be equal..." recited in column 13, lines 7-9; that is, the load of the second set of paths can be equal to that of the first set).

Regarding claim 25, wherein the load balancing of the two protocols are similar (see "The allocation of traffic load between these paths can be equal..." recited in column 13, lines 7-9; that is, the load of the second set of paths can be equal to that of the first set).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Zhu using features, as taught by Inderieden, Goguen, and Workfolk in order to establish paths considering available resources and requirements (see Goguen column 4, lines 3-5) and in order to perform load balancing for the network.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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